

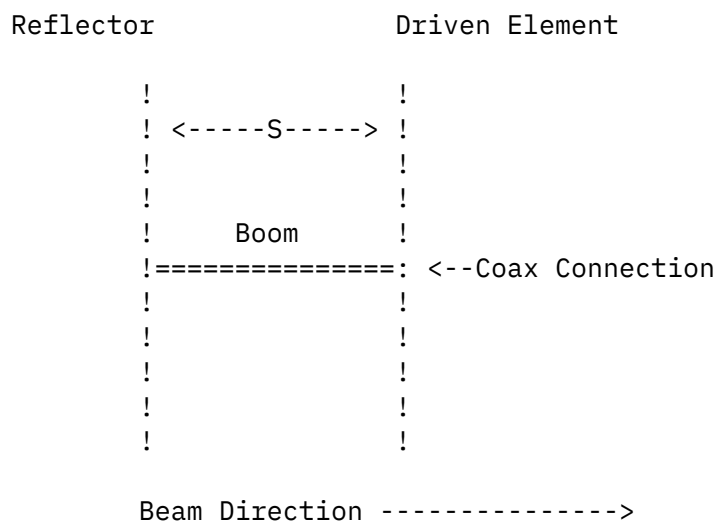
From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: wb2vuo@juno.com (William K Hibbert)
Subject: [684] A Basic 2-Element Yagi
Message-ID: <19960929.140719.4759.2.wb2vuo@juno.com>

Another posting from the BARK PBBS...Keith, WB2VUO

=====

A 2-Element Yagi

Probably the easiest rotatable beam is a 2-Element Yagi, both in the mechanical and the electrical sense. While the gain won't be "up there" with the big tri-banders & the like, a useful amount of gain can be realized without breaking the bank. Below is a "sketch" of a 2-Element Yagi.



Gain is about 5dBd

Although the Reflector and the Driven Element are "sketched" as being the same length, in actuality, the Reflector is 5% longer than the Driven Element. The formulas for the element lengths are listed below:

$$\text{DE (ft)} = 470/\text{F(MHz)} \text{ [HF]} : \text{DE (in)} = 5600/\text{F(MHz)} \text{ [VHF]}$$

$$\text{REF (ft)} = 494/\text{F(MHz)} \text{ [HF]} : \text{REF (in)} = 5880/\text{F(MHz)} \text{ [VHF]}$$

The Spacing (S) can vary from 0.15-Wave to 0.25-Wave, with little change in the array gain. According to the charts in the "ARRL Antenna Book", 14th Edition, the variation in gain is less than 0.5dB. What does change is the feed impedance. Depending on how you want to feed the

array

will determine the spacing. The closer the spacing, the lower the feedpoint impedance. At 0.20-Wave, the impedance is around 40-Ohms, resulting in a 1.25:1 SWR, and at 0.25-Wave, the feedpoint impedance is around 60-Ohms, resulting in a 1.17:1 SWR. This is with direct feed with 50-Ohm cable. The feed can be direct, or through a 1:1 balun, and will show very little variation either way.

Construction of the 2-Element Yagi

Various construction methods can be used for a 2-Element Yagi. The most common is to take a length of rigid tubing, cut to the desired boomlength, and mount the elements with U-bolts, pipe clamps, muffler clamps or what-have-you. The boom can also be wood or a lattice-like structure, or even PVC pipe. The main consideration is mechanical strength. The element can be any conductive material that will support its own weight, or a suitable length of wire or braid that is supported by a rigid non-conductor. One of the really inexpensive antennas I saw in a publication used lengths of #14 house wire, taped to bamboo poles. Of course, the author lived in the South, and just went out in his backyard and cut his own canes! Some people have all the luck!

Below, I have dimension for some of the HF and VHF bands, and some construction "tips":

Freq.	REF.	DE.	Spacing
14.1 MHz	35.04'	33.33'	13.95' - 17.45'
18.1 MHz	27.29'	25.97'	10.87' - 13.59'
21.2 MHz	23.30'	22.17'	9.28' - 11.60'
24.9 MHz	19.84'	18.88'	7.90' - 9.88'
28.4 MHz	17.39'	16.55'	6.93' - 8.66'
29.3 MHz	16.86'	16.04'	6.72' - 8.40'
50.4 MHz	116.90"	111.33"	46.96" - 58.69"
52.5 MHz	112.00"	106.66"	44.99" - 56.23"
146.0 MHz	40.27"	38.36"	16.18" - 20.22"
223.5 MHz	26.31"	25.06"	10.57" - 13.21"

Let's say, for example, that you need a 10 Meter beam. Looking at the chart, the longest element is just under 18', and the boomlength would be about 7' to 8.66'. The elements could be DIY aluminum tubing (expensive), or it could be EMT (conduit), which is heavy, but inexpensive. The boom could be a length of TV mast, Chain-link fence rail or a 2 x 4. The least expensive would be the heaviest (2 x 4 boom & EMT elements), but

the total cost would only be \$20 - \$25. With about 5dBd gain, and a 25 watt rig (Uniden or Radio Shack), this would be like going with a 75 watt amp, at \$0.33/watt, and if you were running 100 watts, you would have effectively 300 watts for \$0.08/watt, plus the cost of the rig, of course. Any way you look at it, it's a big bang for the Buck!

If you wanted to make the Yagi for, say, 20 Meters, the "boom" could be a ladder, (No, I'm not kidding!), or a lattice-construct made with 2 x 2's or 2 x 4's. It would be HEAVY, ... but the price of 20 Meter beams are HEAVY, also. It might be feasible to do the ladder boom, and beef up the mast instead of depleteing your budget.

For the VHF beams, the boom could be PVC pipe, 2 x 2's, TV mast or whatever. One suggestion that was in "73" Magazine awhile back was to use threaded elements, drill holes in the PVC pipe and "bolt" the elements through the pipe wall. This would provide the mechanical support and the insulation for the feedpoint all at the same time. For vertical polarization, the boom could be extended back beyond the Reflector, and the beam then end-mounted, putting the mast out of the field of the antenna. This would allow the antenna to even be side-mounted on an exsisting mast.

The beamwidth of a 2-Element Yagi is about 110-Degrees, so aiming is not critical, however, the front-to-side ratio and front-to-back ratio is 10 - 20 dB, providing a high degree of rejection to unwanted signals. To put this in perspective, say you lived in Brockport or somewhere in the Western edge of Monroe County. The 2 Meter version of this antenna could be mounted up in the clear, and "sited" on the center of Rochester. You would have gain from the North Greece area, all the way around to Rush, and would reduce the VE3 repeaters by a couple-or-3 "S"-units. Not bad for a few chunks of wire & a piece of PVC.

The possibilities are limitless. Consider a 2-Element Yagi this Antenna season.

73, Keith WB2VU0, QRP-L #582
Trustee, KB2YTW/B 10 Mtr Beacon (28.2860 MHz)
"In the Depths of the Great Bergen Swamp...FN13ac"

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: "Chris J. Cartwright - ELF" <dsc3cjc@imc220.med.navy.mil>
Subject: [695] Altoids tins
Message-ID: <Pine.3.89.9609292145.A27806-0100000@imc220>

For those in the greater Washington DC area (and others?) looking for Altoids tins for 49'ers and other projects Giant Foods has them in the international foods aisle, \$1.99 a tin, and the mints aren't all that bad either...

-- Christopher Cartwright, Tech. Engineer		...our chief weapons are fear,
-- Voice 301.295.0809 N3XRV QRP-L #655		fear and surprise, and nice
-- Mail dsc3cjc@imc220.med.navy.mil		red uniforms, oh damn!!
-- ccart@erols.com		-- Monty Python

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: "Jeffrey M. Poulin" <jpoulin@erols.com>
Subject: [669] first kit suggestions
Message-ID: <199609291052.GAA18939@smtp2.erols.com>

Hi Folks:

I'm new to ham radio and *very* new to this list. I'm a Tech Plus and, for some reason, the idea of QRP operation has intrigued me since I began studying for my ticket. Also, using CW appeals to me for combining skills of the past with efficiency for today. I'm working towards a General class licence but that is at least a couple of months away.

I have built one kit, the Ten-Tec regen. receiver, and really enjoyed it. While saving up for a multi-band rig (Jeff Gold was kind enough to give me some suggestions), I thought an inexpensive kit that covers one of the novice bands would be fun, worthwhile, and get me on the air below VHF freqs.

I would like to ask the group the following:

- suggestions for an inexpensive first time builder's transceiver kit
- the best band to try (40 meters seems likely)
- a portable antenna for the rig (I can put up a resonant dipole, etc., at home)
- is the MFJ 90xx series any good (in case I find one at a good price)

I am sure this is very old hat to most of you. If you don't want to take up list space with answers, please feel free to e-mail me directly.

Thanks in advance for any help.

Jeff, KF4JSV

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: wb2vuo@juno.com (William K Hibbert)
Subject: [675] G5RV ideas for 160 thru 6 Meters
Message-ID: <19960929.100302.4719.2.wb2vuo@juno.com>

This is from a posting on the BARK PBBS...Keith, WB2VUO

=====

SOME IDEAS ON THE G5RV

The G5RV multiband antenna is a very popular design on the HF bands. The "common" G5RV is configured as a 3/2-wave dipole on 20 meters, and works as either a shortened dipole, or a collinear-fed long wire on the other bands. In this configuration, the overall length is 102 ft, with a 28 to 34 ft matching line. In some cases, this is still too large to fit in one's yard, and not everyone can convince their neighbors to allow one to stretch the wire across property lines. In this case, a 1/2-size version, covering 7 to 28 MHz is useable. Conversely, some amateurs would like to have 1.8 MHz capability, and have the 204 ft length necessary for this array. I have dimensions included here for both the half-size, and double-size G5RV antennas.

Bands	1.8-28 MHz	3.5-28 MHz	7.0-28 MHz
Flat-top	204 ft	102 ft	51 ft
Matching lines			
Open wire	67.3 ft	34 ft	17 ft
Ladder line	62.4 ft	31.5 ft	21.2 ft
"TV" twin lead	56.9 ft	28.5 ft	14.4 ft

[All of the above-mentioned antennas will work on the 6 Meter band, sometimes without an ATU.]

Of the listed antennas above, the 7-28 MHz version was referred to in Louis, G5RV's article in the ARRL "ANTENNA COMPENDIUM" Volume 1, the 1.8 - 28 MHz version is in use at Evhan, WB2ELB's QTH, (with a single feedline, directly matched with the internal ATU in his Kenwood, I am also running the double-scale G5RV here on 160 - 6 Meters and the 3.5-28

MHz version in use by more local hams than I can remember right now.

Just for reference, the ladder line is available at most amateur dealers, over-the-counter, or mail-order, and the polycarbonate (Lucite) plastic for the spreaders for home-built open wire is available at any major plastic supplier at scrap prices here in Rochester.

If you have any questions on the G5RV, parts, reference books, Etc, drop me a line, on packet at WB2VUO@WB2VPH.#WNY.NY.USA.NOAM, or call on the phone, (716)494-1239...73, Keith

Keith, WB2VUO, QRP-L #582
Trustee, KB2YTW/B 10 Mtr Beacon (28.2860 MHz)
"In the Depths of the Great Bergen Swamp...FN13ac"

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: w0ch@juno.com (David A. Bixler)
Subject: [701] Getting ready.....
Message-ID: <19960929.214814.10487.0.W0CH@juno.com>

Since 7040 was kinda messy this weekend with the RTTY contest and the Tennessee QSO party, I spent some time getting ready for this fall's events.

Today the sun finally came out so I cleaned up the car and got the mobile ready for 40 CW. Resonated the whip for 7040 and hooked up a Radio Shack DSP. I'm going to try to work the Foxes from the mobile on some of my business trips. Hope those guys have good ears!

Tonight, I fired up the home station on 80 and worked WA50ES/QRP out in Colorado. Not great DX, but this is probably the first time I've worked QRP on 80 since the 60's. Guess this does not count for the EMPS since it's still September.

Thanks to Chuck and the QRP-L'ers, we will have a busy winter season. Hope to see you all on the bands.

72,

Dave W0CH Seneca, MO
W0CH@juno.com

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: Gary Surrency <gsurrenc@ix.netcom.com>
Subject: [685] High Angle Radiators
Message-ID: <324EBDCE.6C6A@ix.netcom.com>

William K Hibbert wrote:

>
> I had a request for any info I had on loops, especially for use in NVIS
> work (Thanks, Vic!)
>
> Here's a posting from the BARK PBBS on the SkyLooper...73, Keith, WB2VUO
>
> The HF/MF Skylooper For 160 - 40 Meters
>
> A variation on the Looper is the Skylooper. This particular variation
> lends itself to the lower frequency bands, as the radiation angle is
> intentionally high. Why, do you ask, would one want to shoot a signal
> straight up into the Ionosphere with it? Well, on the lower bands, say,
> 160, 80 and 40 Meters, there is an advantage in the high angle radiation.

-----SNIP-----

When living in central Florida, I once had an experience with this phenomenon. I had a 40m dipole about 25 feet high in two palm trees. I got a crazy idea one day to put a parasitic reflector below it to beam the signal straight up into the sky. The reflector I installed was near enough to the ground so I could reach it when standing, so I put a SPST knife switch in the center that could be switched off or on to notice the change in radiation pattern (angle).

It was quite an eye opener! The distant signals from the shortwave stations (BCI) seemed to go way down, and signals up into South Carolina and Georgia went way up in strength! Some nearby signals in Fla also seemed to get much better, with less QSB, and the Bahamas station I used to work was much stronger: WB40PF/VP7.

It was a neat experiment that required very little effort since the reflector wire was easily added near ground level. I guess the spacing wasn't optimum, since I didn't

have much height to work with on the driven element, but the length of the reflector

I calculated pretty close, so it definitely made a difference.

So, if you are having trouble reaching the neighborhood hams, this is worth a try! ;-)

Some of you might want to try this. I was amazed at what a single added wire beneath the driven element could do! Antenna experiments are always a blast! :-)

72/73,

--

Gary, AB7MY QRP-L #571 Chandler, AZ (near Phoenix)Grid Square DM43BH

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: duane <duane@flinet.com>

Subject: [666] inductors explorer II 30 meter band

Message-ID: <324E4208.6EAC@flinet.com>

I put my explorer II 30 meter ver. together but when winding the coils is it OK to put clear fingernail polish on them to keep the windings tight and unmoveable ? I did this without asking first ..The coils involve the tuned output network not the osc as best I can tell. Now for my other little problem, when using a freq. counter to check my osc FREQ it tells me the osc is at 4.840 MHz and it should be at 3.6 MHz. I using a handheld freq counter and an insulated wire as a pickup probe. Is this ok? Or is this likely not to give me an accurate reading. And is the zener diode in the output circuit for SWR protection it's a 34 volt 5 watt diode.

thanks duane AB4BE

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: Doug Hendricks <ki6ds@telis.org>

Subject: [692] KI6DS Resigns From QRP ARCI Board

Message-ID: <324F02C2.69D3@telis.org>

I have resigned my position as a member of the Board of Directors of QRP ARCI. This was not a hasty decision but o

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: "Frank G3YCC" <g3ycc@enterprise.net>
Subject: [678] Latest web page additions
Message-ID: <199609291535.QAA05592@mail.enterprise.net>

The latest web page additions include
More links
Info on the G5RV

More to come incl. how to run QRO rigs on QRP.

--

Frank G3YCC (G QRP 042)
QRP Web Page:
<http://homepages.enterprise.net/g3ycc/>

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: Mike Czuhajewski <wa8mcq@u1.abs.net>
Subject: [660] Leaky dummy loads
Message-ID: <Pine.BSI.3.93.960929011318.624B-100000@u1.abs.net>

There was some discussion recently about testing tuner efficiency, and someone made the comment that you had to have a good, shielded, RF-tight system throughout for best results. Don't forget, that includes any dummy load you might be using, and that dummy load must also be RF-tight for any other uses.

I have an MFJ model 260 dry dummy load, 300 watts, and it isn't always RF-tight. Once I noticed that while I had my TS-430S connected to it I could hear weak signals trickling through sometimes, coming and going as I wiggled the cable. Normally this is a classic symptom of a bad connection between the shield of the cable and the coaxial connector. In this case, it turned out to be the fault of the dummy load itself. The SO-239 socket on it is mounted with a pair of rivets, and they don't do an exceptional job of insuring a good connection between the body of the connector and the chassis. One of these days when I get motivated I'll drill out the rivets and replace them with screws and lock washers, insuring a better RF connection (and keeping all the RF sealed inside the box).

If you have a dummy load, MFJ or otherwise, which has rivets securing the connector to the chassis, you might want to consider replacing them with better hardware.

73 and Queue Our Pea DE WA8MCQ

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: Russ1031@aol.com
Subject: [699] Lessons Learned From QRPing in the Clouds
Message-ID: <960929222738_533287607@emout07.mail.aol.com>

With October around the corner, I've just about hit the end of the season for human-powered QRP adventuring. I thought this might be a good time to post a few lessons I've learned about the mountain goat approach to QRP radio.

I expect to hear a few snickers, if not outright guffaws, about the first issue. It turns out that rocks, stumps, logs, and the cold, hard ground are not the world's most comfortable objects to sit on when operating a radio. They're acceptable for a while, but pretty darn soon paralysis sets in. I now carry an aluminum "captain's chair," strapped to my pack. It looks very silly, but I finally have a happy rear end.

The second issue is the matter of back country antennas. For me, nothing approaches the inverted V, supported by a portable mast. It is efficient, omni-directional, and easily made into a no-loss multiband antenna through the use of shunts.

What ham radio needs, however, is a lightweight mast that's high enough for decent low-angle radiation (at least 25 to 30 feet) and strong enough to support an 80 through 10 antenna that's being hauled up and down to change the shunts. I've been experimenting with various homebrew and commercial designs, but feel I'm a long way from a good solution. The light ones aren't stiff or strong enough, and the robust ones are too heavy. I'm hoping that one of the geniuses on this List is going to invent something that's just as crafty, strong, and handsome as the anodized aluminum poles that support state-of-art tents.

The third issue has been discussed recently on QRP-L and is the subject of Adventure Radio Society's Trail Friendly Radio Challenge. Out in the sticks, conventional radios are literally a pain in the neck. If you're lucky enough to have a table at your favorite outdoor setting, ordinary radios would be fine. But given the realities of most places you walk to (whether a mountain peak or your living room couch), rice box radios are usually hopelessly awkward.

My own view is that a travelling radio should be like a laptop computer, with the controls in the lower half, and the meters and digital displays in the upper half. The whole thing would be operated from your lap, which is usually the only practical operating surface around. The laptop radio would fold up into a durable, compact package, just the way the computer

does.

My last issue relates to the very activity of human-powered travel. None of the radio-oriented hikes I took this summer were difficult. They were all within the abilities of the great majority of the readers of this List. Yet, I didn't contact a ton of other people who had hiked, biked or canoed to their QRP adventures.

This puzzles me. In spite of my general laziness and ineptitude, I contacted 43 states from the backwoods this summer. I operated from settings whose beauty almost defies description. All of this with just a Sierra (and chair!), a handful AA batteries, an inverted V, and a pair of hiking boots. I'm hoping my positive experiences might inspire others to give it a try.

If the foregoing sermon has reached you, but you're not yet a member of the Adventure Radio Society, have we got a deal for you. For \$0.00 per year, you can join the ranks of a great group of men and women who enjoy the outdoors and/or playing with lightweight radio equipment. Just e-mail our membership chairman, Richard Fisher, at ki6sn@aol.com.

I'll be out of touch for a while, thanks to an outdoor adventure in Bhutan during October. See you in a month!

Russ Carpenter, AA7QU, McKenzie River, Oregon

Sent from a Newton via Aloha 2.3

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: wylde@nccn.net (Grover Cleveland WT6P)
Subject: [671] Max power on a QRP+? (and another question)
Message-ID: <v02130504ae742944bc4d@[205.139.74.187]>

Max power?

Are these radios sold only directly or through distributors as well?

Thanks,

Grover

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: qrp-1@fido261.qis.net (qrp-1)
Subject: [658] Maybe off topic
Message-ID: <c29_9609290043@fido261.qis.net>

Hello All!

If anyone who (gasp) runs qro with Drake gear,,,you might be interested
in the Drake Mailing list.
For Info...send email to
listservfablotz.min.net
in the body have
help
FAQ Drake

Thom LaCosta
K3HRN
thom@fido261.qis.net
Our Business is Business

--

|Fidonet: qrp-1 1:261/1352
|Internet: qrp-1@fido261.qis.net
|Standard disclaimer: Take a Naugha to Lunch today YOU pay the bill!

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: qrp-1@fido261.qis.net (qrp-1)
Subject: [668] Maybe off topic
Message-ID: <c39_9609290638@fido261.qis.net>

"Harvey D. D. Hetland" wrote in a message to All:

"DDH> I think there is something missing in the address you posted for
"DDH> the Drake mail list FAQ? Can you check the address? Thank you.

"DDH> listservfablotz.min.net

Sure is...it's listserv@fablotz.min.net
guess I need a new keyboard or a new typist (g)

Thom LaCosta
K3HRN
thom@fido261.qis.net

Our Business is Business

--

|Fidonet: qrp-1 1:261/1352

|Internet: qrp-1@fido261.qis.net

|Standard disclaimer: Take a Naugha to Lunch today YOU pay the bill!

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: PDouglas12@aol.com

Subject: [700] Mod to Sierra for 80m novice end

Message-ID: <960929230108_296836660@emout13.mail.aol.com>

Hi gang,

The problem: Sierras only have 150 Hz range in their dial, so the 80m novice band is beyond the high end of the dial by about 50 Hz. How can the Sierra be used in the novice segment to check into the Knightlites net that meets at 3710 kHz without making a new 80m module, just for that segment?

The answer:

Thought I would report a simple mod to get the Sierra up to the novice end of 80m. For me it was necessity being the mother of invention as usual. The vfo can be lowered about 50 Hz by adding about 9 to 12 pf across the variable cap. I used one of those match head caps. It was quite stable, and by putting an alligator clip on each of the leads, it can be installed/uninstalled quickly and conveniently.

I used it to check into the Knightlites this evening, something I haven't been able to do with my Sierra. Of course, using the KC2 for freq readout with the temporary cap in place (it works fine that way) gave me a perfectly accurate way to find the net. Neat and cheap. I had been thinking I would have to make a separate module for the upper end of 80, so I was quite pleased with this simple, if somewhat inelegant solution. If you have a Sierra, especially with a KC2 and have been frustrated because you can't get it to the novice band on 80m, try the cap trick. No reason why it shouldn't work with the KC1 either. The analog dial will, of course be useless while the cap is in place, however. NB, this only works because the vfo is used in a subtraction scheme on 80m in the Sierra, so the cap pulls the vfo lower, resulting in a higher operating frequency. Also, I would note that a this is fine for occasional use, but probably not something you would want to use in the mobile, for instance! Insulation of the clips and leads would be a good safety measure too.

Keep your clip-on cap with the other modules and you will always be able to work into the novice end of 80m.

Incidentally, I do apologize to Paul AA4XX, Knightlites net control for not paying attention and QRMing the net by sending out of turn! I so was delighted with the mod working, I missed my cues. And the net had enough trouble with folks CQing right on top, without me messing up! Still is a great net to work on Sunday nights at 10.

Hope they let me back!

72,
Preston WJ2V

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: Randy L Phelps <rlp2pr@perry.stark.k12.oh.us>
Subject: [679] MT-61 TUBULAR TOWER
Message-ID: <Pine.LNX.3.91.960929120901.12976A-100000@perry.stark.k12.oh.us>

Hi All! I have a problem and am desperately seeking help. I am posting this to different groups in hopes of finding a solution.

I have a "Wilson Electronics Corporation" MT-61 Tubular Crank-up Tower. The cable used for cranking up the tower SNAPPED! I telephoned U.S. Tower, who through a buyout, owns the rights for information on re-stringing the cable. Their reply was, "you didn't buy it from us.....sorry, we can't help you." I couldn't hardly believe it!!

Does anyone have a diagram with instructions on how to re-cable a Wilson MT-61 crank-up tubular tower? I will pay for ANY copying and shipping costs!!! PLEASE.....Any help is greatly appreciated!!

Signed.....
Stuck At 25 Feet!

Randall L. Phelps KD8JN
1226 Delverne Ave SW
Canton, Ohio 44710-1306

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: kb9kol@juno.com (William J. Nickrand)
Subject: [696] NC-40 graphic??
Message-ID: <19960929.190054.6695.0.KB9KOL@juno.com>

Anyone know where to get a gif (or other graphic format) of a Norcal 40A?

KB9KOL Newburgh IN---BILL NICKRAND---WORK IN PROGRESS

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: "Thomas J. Whalen" <whalen@swcp.com>
Subject: [659] No Connection
Message-ID: <Pine.SUN.3.91.960928224732.29840A-100000@kitsune.swcp.com>

I tried to subscribe to Glowplugs at listproc@theporch.com and it came back saying there is no such animal. Will the fellow that put out this information please check it out and make sure it is correct? Thanks Tom WB5QYT

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: Jim Stafford-W4QO <w4qo@america.net>
Subject: [690] NoGaQRP meeting announcement
Message-ID: <Pine.SOL.3.91.960929185527.24222E@atl1>

The NoGaQRP group (North Georgia) will hold its fall meeting at the Morrison's cafeteria in Atlanta at 11 AM on October 19. Morrisons is located just south of I-85 on North Druid Hills. Bring some rigs, gear, stuff to talk about during a round table. We should be done by 1:30 PM, but you never know! We will also be trying to have a table at the Lawrenceville Hamfest on November 2, to promote QRP. If you would like to help with the table but cannot attend the meeting, give me a call. We will have a number of doorprizes.

Jim Stafford, W4QO NoGaQRP Group + RadioActive Schools(sm) -
11395 West Road Using amateur radio as
Roswell, GA 30075-2122 a teaching tool in north
770-993-9500 Georgia area schools.
Internet: w4qo@america.net Packet:W4QO@WA4BRO.#atl.ga.usa.na
QRP-L #267 QRP-QRCI #6515 G-QRP #5588 MiQRP #897 NorCal #1092 CQC #307

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: wb2vuo@juno.com (William K Hibbert)
Subject: [674] NVIS and Loops (SkyLoops)
Message-ID: <19960929.100301.4719.0.wb2vuo@juno.com>

I had a request for any info I had on loops, especially for use in NVIS work (Thanks, Vic!)

Here's a posting from the BARK PBBS on the SkyLooper...73, Keith, WB2VUO

The HF/MF Skylooper For 160 - 40 Meters

A variation on the Looper is the Skylooper. This particular variation lends itself to the lower frequency bands, as the radiation angle is intentionally high. Why, do you ask, would one want to shoot a signal straight up into the Ionosphere with it? Well, on the lower bands, say, 160, 80 and 40 Meters, there is an advantage in the high angle radiation.

On the upper regions in the HF spectrum, the best results are realized with low angles of radiation, say 15 Degrees above the horizon, or lower. These low angle signals will give you the best range (DX). This is true on the lower bands also, but "real" DX is not necessarily what we would be looking for there.

There have been a number of published studies that show that the majority of signals heard on 160 - 40 Meters arrive at an angle above 35 Degrees, and the long range propagation on the bands arrives via multiple hops, with little regard to the low angles characteristically seen on 30 Meters and up. So, it is not really a disadvantage to intentionally transmit at a high angle.

So, how do we enhance the higher angles? Well, a large beam, pointed straight up in the air is one possibility. Now, by making an analogy, the ground can act as a reflector, and by "spacing" our driven element about 0.15 to 0.20 wavelengths from our "reflector", we will have a 2 element "beam", and it will be pointed straight up to the Ionosphere! This will enhance the "local" paths, out to 500 miles or so, on these bands.

So, with all these desirable features, the next question would be, "How do I build a Skylooper?" As I stated earlier, the height above ground for the Skylooper should fall in the range of 0.15 to 0.20 wavelengths. The calculations for this would be $147/F(\text{MHz})$ for 0.15 wave, and $197/F(\text{MHz})$ for 0.20 wave. either the Delta-configured, or the Diamond-configured Looper can be used, although the Diamond seems to be more popular. This configuration was published as "The German Quad", with a design frequency of 3.55 MHz, and was fed with 75-ohm coax for 80-2 Meter operation.

Here are charts, in tabular form, for 160 - 40 Meters:

Freq.	Delta Side	Diamond Side	0.15 Wave	0.20 Wave
1.8 MHz	186.1'	139.6'	81.7'	109.4'
3.6 MHz	93.1'	69.8'	40.8'	54.7'
3.9 MHz	85.9'	64.4'	37.7'	50.5'
7.1 MHz	47.2'	35.4'	20.7'	27.7'

To feed the Skylooper as a single-band antenna, feed any corner with a 1/4-wave length of 75-ohm coax, either RG-59/U, or RG-11/U. It is possible that with the 0.15 - 0.20 Wave height, the feed impedance may already fall in the 50 - 60 ohm range without the matching section. Give the Skylooper a try.

73, Keith, WB2VUO, QRP-L # 582
 Trustee, KB2YTW/B 10Mtr Beacon (28.2960 MHz)
 "In the Depths of the Great Bergen Swamp...FN13ac"

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
 From: Dale LeDoux <dledoux@laci.net>
 Subject: [687] OHR400 vs Sierra
 Message-ID: <1.5.4.16.19960929142617.25c7778e@laci.net>

OK, gang...let's have a bit of discussion... I have freed up a bit of cash for a new rig, QRP, of course. I want multi-band ability. Portability is a plus, but I don't backpack (Uncle Sam having satiated my desire for that activity several years back)so it doesn't have to be too portable.

After careful reading of this list and a few other sources, I've sort of narrowed my choices down to the OHR-400 or the Sierra. I am now looking for recommendations with rationale to back them up. Which do I choose?

72,

Dale LeDoux
 Bath Electrical Systems
 Power Specialists -- 480 V to 230 KV
 KD5QI

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: "Grover & Doris T." <SIXPENCE@worldnet.att.net>
Subject: [702] QRP DX OPTIMIST
Message-ID: <2.2.16.19960930000224.244f954a@postoffice.worldnet.att.net>

Good Evening:

Does anyone know of a published data base (hard copy, CD, or other) listing Geographic coordinates for world wide cities?

QRP-L, Buckmaster, QRZ do well for the USA, and Bali is a help with the major capital cities but info on other locations is scarce as hens teeth. I have a fair collection of atlases, country, and road maps for the USA and Europe but they are just a start.

Please respond direct; I will consolidate answers and post a summary to the list.

72 y Paz ..Grover KQ4AL Occoquan, VA USA ARS/CQC/G-QRP/MIQRP/NEQRP/
NorCal
QRP/QSLs WAS = 34 DX= XE VE NWQRP/QRP-L
QRO/QSLs WAS = 49(-Hawaii) DXCC = 62 IOTA = 27
<SIXPENCE@worldnet.att.net>

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: GREGOIRE@ENDOR.COM (ERNEST GREGOIRE)
Subject: [688] QRP+ mods.(RF GAIN,CW PWR ADJ)
Message-ID: <199609292115.RAA05107@nss2.CC.Lehigh.EDU>

Hello Gang,

I really am sorry that I missed the CQWW RTTY, contest. RTTY and QRP go together swell and it's another mode to get your DXCC, or WAS, in.

I'll be taking part in it next year for sure, and with a rig that is in much more capable. I did that RF gain mod that we discussed here on the list some time ago. While I had the rig all apart, I changed the pot on the rear of the rig. Now I can just reach over the top, and adjust the power by turning a knob.

(RF GAIN MOD)

Parts: 1, 10k pot, mil.spec. digi-key part no. 308-npc-103
This is a very small carbon pot.

- 1, .1 mfd. ceramic cap.
- 1, diode 4148
- 2, 10k 1/4 watt resistors.
- 1, machied aluminum knob digi-key part no. 10203nd

(CW POWER MOD)

Parts: 1, 1k pot mil.spec. digi-key part no. 308-npc-102
1, machined aluminum knob same part no. as above.

I had to drill a new hole in the rear of the case.
No big deal, really. I lined it up vertically with the key jack.
The new hole near the top of the case. Be sure to push the stack of
boards forward when tightening them back down so the jacks stick out
as close as possible to the surface of the rear panel.

The 1k pot change went smoothly too. I enlarged the cw power hole to
give me more play in assembling the rig. That new pot is larger than the
old one and it's pretty tight in there. The pins of the pot come bent over
so I straightened them out and rebent them to fit the old holes on the pcb.

The rig works great with the new mods, and I hope to give it a good test
in the next big contest when I wade in among the big guns with my QRP+.

I have a digital schmatic of the RF mod. If you would like a copy, I'd
be glad to send it to you privately. It is done with Windows Paint brush.

I can also send it via S.A.S.E. if you like.

de AA1IK N.E.-QRP-C. # 202 (Lead by example, It is better to)
 QRP-L member #95. (pull a string than it is to push it.)

Ernie Gregoire
RR 1 Box 221
Canaan, NH. 03741

New England QRP Club, information
available on request by sending me a
S.A.S.E. or via E-mail.

e-mail : GREGOIRE@ENDOR.COM
packet : AA1IK@WA1WOK.FN43FE.NH.USA

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: Cecil A Moore <Cecil_A_Moore@ccm.ch.intel.com>
Subject: [657] r.r.a.qrp on netnews?

I'm a relatively new subscriber wondering why there isn't
a netnews group, like rec.radio.amateur.qrp?

73, Cecil, W6RCA

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: "Arjen Raateland, SYKE/YV, puh. 90-4030 0457" <Arjen.Raateland@vyh.fi>
Subject: [667] RCA-4013 specs?
Message-ID: <01IA1VY3A7GU8Y6MPC@vyh21.vyh.fi>

I've asked this before, but I'll try again:

Dan's Small Parts sells a transistor type 4013 by RCA (case T0-39) as
a substitute for the 2N3553. I've got a bunch of these, now, but I
haven't tried any of them because I haven't destroyed my Sierra PA
2N3553 yet, hi.

Does anybody on this list have experience with these transistors or
perhaps even the specs?

The case top has 4013 along the upper rim, RCA in the middle and C B
7707 along the bottom. There is also a number 7 punched into the
metal.

tnx,
Arjen Raateland, OH2ZAZ
---... ---... ---... ---... ---... ---... ---... ---...
Finnish Environment Institute, Helsinki, Finland
SAS Support
EMAIL: Arjen.Raateland@vyh.fi
tel. +358 0 4030 0457
fax +358 0 4030 0490
.-.-.-.-

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: n4so@juno.com
Subject: [697] Reference Book Sources
Message-ID: <19960929.204654.5199.3.N4SO@juno.com>

Low-Power Reference Books

This is a request for your list of favorite Reference Books related to Low -Power.

Here is a sample of what I am adding to a text file:

"Electronic Data Book for Homebrewers and QRPers " available from:

5 watt Press

740 Galena St.

Aurora, CO 80010-3922

cost is \$23 postpaid

I am aware of the latest book by Zack Lau, QRP Power,

The ARRL Handbook, The Radio Communication Handbook by RSGB, The ARRL Operating Manual....any others?

KEN BROWN

QTH: MOBILE, AL

QRP-L #622

n4so@juno.com

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: Bob Hightower <ki7mn@dancris.com>

Subject: [691] Rules

Message-ID: <199609292312.QAA13240@dancris.com>

OK, guys. Now that Chuck posted the rules and list of foxes (foxii?) for the upcoming foxhunt season, I have them on my web page. Also, I have the rules for FYB0 and the 40-9'er contests. These rules have been posted verbatim, so any questions need to be directed to the authors, not to me.

I did this so that those, like me, who have a tendency to misplace rules can now have a place to find them when they need them, like just before the start time of the contest/event.

You can find them at <http://www.dancris.com/~ki7mn>.

73,

Bob, ki7mn@dancris.com

NorCal #1228, ARCI #8918, Qrp-l #271, CQC 274

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: Russ1031@aol.com

Subject: [698] Second Reminder for the October Spartan Sprint
Message-ID: <960929222731_533287491@emout08.mail.aol.com>

The October Spartan Sprint will be held on October 7 (which is our standard date--the first monday of the month).

The Spartan Sprint is based on a simple but stimulating concept. We are encouraging all of you to cobble together the kind of station you'd use in a portable environment--lightweight transceiver, keyer, key, antenna tuner and battery. Then put that turkey on the air, and participate in a two hour sprint.

All operators are invited to play, whether or not they are members of Adventure Radio Society. Even if you don't have lightweight equipment, your participation will be rewarding, both for you and the other participants. We'll report the score in two different formats--absolute scores, and QSOs per pound of station weight. So you can get your kicks from running up a magnificent score, or achieving an remarkable ratio of Qs per pound.

ARS provides handsome certificates to the operators who achieve the top four scores in the Qs per pound category.

During October, I'll be on a hiking trip on Bhutan, so the Sprint will be administered by Richard Fisher, KI6SN. Here is the procedure for October 7:

1. Start at 9:00 PM EDT, 8:00 CDT, 7:00 MDT and 6:00 PDT.
Finish at 11:00 PM EDT, 10:00 CDT, 9:00 MDT and 8:00 PDT.
2. Use 7040 +- Khz and 14,060 +- Khz (You may operate one or two bands--your choice).
3. Exchange RST, SPC (state, province or country) and power output.
4. If you choose to call CQ, use the format "CQ SP".
5. If you are operating under the portable QRP rules, add "/PQ" to your call. (You can find those rules at our web site, <http://members.aol.com/adradio/index.html>)
6. You can take credit for working the same station on a second band.

After the contest, send Richard Fisher e-mail with your total QSOs and the total weight of your station (i.e., the combined weight of the transmitter, receiver, antenna tuner, key, keyer and battery). You may also include your comments from the soapbox. If you get that information to Richard by Tuesday night, he'll include your data in the contest

results, which he'll publish on Thursday, October 10 on the ARS web site and the QRP-L. Richard's e-mail address is KI6SN@aol.com.

If you're thinking about becoming a member of Adventure Radio Society, just send Richard an e-mail expressing your interest. Membership is free, and the organization has a great group of men and women who combine their love of ham radio with their affection for the outdoors. You don't need to be a macho person; ARS welcomes people of all ages and levels of ability.

72, Russ Carpenter, AA7QU
ARS#1

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: wb2vuo@juno.com (William K Hibbert)
Subject: [676] The G5RV Antenna (Long)
Message-ID: <19960929.100301.4719.1.wb2vuo@juno.com>

This is a 4-part posting that I have on the BARK PBBS. I didn't update the calls, so my prior call is still there. NOTE: There is NOTHING NEW here, I had just gathered it together for the Klub so the info was easily accessed. Sources are credited at the end.

Hope this is useful...73, Keith, WB2VUO, QRP-L #582
Trusett, KB2YTW/B 10 Mtr Beacon (28.2860 MHz)
"In the Depths of the Great Bergen Swamp...FN13ac"

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Page 1

THE G5RV ANTENNA

The G5RV is a very popular antenna on the HF amateur band today. Despite its widespread use on the bands, there are some myths and misconceptions concerning the G5RV that seem to have a life of their own. Working with text from the ARRL "Antenna Compendium", Volume 1, I would like to shed some light on this versatile antenna.

First, from Louis Varney, G5RV, of West Sussex, UK, here is some background and insights into the G5RV.

"The G5RV antenna, with its special feeder arrangement, is a multiband

center-fed antenna capable of efficient operation on all HF bands from 3.5 to 28 MHz. Its dimensions are specifically designed so it can be installed in areas of limited space, but which can accommodate a reasonably straight run of 102 ft for the flat-top."

Louis further states that, "In contradistinction to multiband antennas in general, the full-sized G5RV antenna was NOT designed as a half-wave dipole on the lowest frequency of operation, but as a 3/2-wave center-fed long-wire antenna on 14 MHz, where the 34 ft open-wire matching section functions as a 1:1 impedance transformer. This enables the 75-ohm twin-lead, or 50/80-ohm coaxial cable feeder, to see a close impedance match on that band with a consequently low SWR on the feeder. However, on all the other HF bands, the function of this section is to act as a "make-up" section to accommodate that part of the standing wave (current and voltage components) which, on certain operating frequencies, cannot be completely accommodated on the flat-top (or inverted-V) radiating portion. The design center frequency of the full-size version is 14.150 MHz, and the dimension of 102 ft is derived from the formula for long-wire antennas which is:"

$$\begin{aligned}\text{LENGTH (ft)} &= 492(n-.05)/f(\text{MHz}) \\ &= (492 \times 2.95)/14.15 \\ &= 102.57 \text{ ft (31.27 m)}\end{aligned}$$

where n = the number of half wavelengths of the wire (flat-top)

"Because the whole system will be brought to resonance by the use of a matching network in practice, the antenna is cut to 102 ft."

As the antenna does not make use of traps or ferrite beads, the dipole portion becomes progressively longer in electrical length with increasing frequency. This effect confers certain advantages over a trap or ferrite-bead loaded dipole because, with increasing electrical length, the major lobes of the vertical component of the polar diagram tend to be lowered as the operating frequency is increased. Thus, from 14 MHz up, most of the

energy

radiated in the vertical plane is at angles suitable for working DX. Furthermore, the polar diagram changes with increasing frequency from a typical half-wave dipole pattern at 3.5 MHz and a two half-wave in-phase pattern at 7 and 10 MHz to that of a long-wire pattern at 14, 18, 21, 24 and 28 MHz.

Although the impedance match for 75-ohm twin-lead or 80-ohm coaxial cable at the base of the matching section is good on 14 MHz, and even the use of 50-ohm coaxial cable results in only about a 1.8:1 SWR on this band, the use of a suitable matching network is necessary on all the other HF bands. This is because the antenna plus the matching section will present a REACTIVE load to the feeder on those bands.

Page 2

Thus, the use of the correct type of matching network is essential in order to ensure the maximum transfer of power to the antenna from a typical transceiver having a 50-ohm coaxial (unbalanced) output. This means unbalanced input to balanced output if twin-lead feed is used, or unbalanced to unbalanced if coaxial feeder is used. A matching network is also employed to satisfy the stringent load conditions demanded by such modern equipment that has an automatic level control system. The system senses the SWR condition present at the solid state transmitter output stage to protect it from damage, which could be caused by a reactive load having an SWR of more than 2:1."

In Part 2, I will discuss the theoretical operation of the G5RV antenna band-by-band...Keith, KE2DI

END OF PART 1.

Page 1

THE G5RV ANTENNA (PART 2)

----- THEORY OF OPERATION -----

The general theory of operation follows. As I can't put the diagrams in the file, I will paraphrase the text from the ARRL "Antenna Compendium", Volume 1, which is a great book for the antenna fan (NOT A COMMERCIAL, JUST AN OBSERVATION..[WKH]). Please keep in mind that this is the THEORETICAL information, and the actual operation will depend on placement, height above ground, metal siding, power lines, trees, UFO flight patterns, Etc.

3.5 MHz: On this band, the antenna acts as a shortened half-wave flat-top, with about 17 ft of the total length made up by the matching section. The remainder of the matching section introduces an unavoidable reactance to the antenna between the feedpoint and the feedline. The antenna pattern is effectively the same as a half-wave dipole on this band.

7 MHz: The flat-top, plus 16 ft of the matching section makes up a partially folded up 2 half waves in phase, (collinear) antenna. The antenna pattern is somewhat sharper than a dipole because of its collinear characteristics. The match is somewhat degraded due to the unavoidable reactance introduced by the extra length in the matching section. This reactance can be easily tuned out with an antenna tuning unit (ATU).

10 MHz: On this band, the antenna functions as a 2 half-wave collinear. It is very effective, but the reactance presented at the feedpoint requires a good ATU. The pattern is basically identical to the 7 MHz pattern.

14 MHz: This band is where the G5RV really shines. The antenna is operating as a $3/2$ wave long, center-fed antenna with a multi-lobed, low angle pattern of about 14 degrees elevation, which is very effective for working DX on this, the most popular DX band. The antenna presents a 90-ohm load with basically no reactance present. Even the use of a 50-ohm coaxial feed will present a SWR of only about 1.8:1, easily tuned out with an ATU.

18 MHz: The antenna performs as 2 full-waves in phase, combining a lower angle with the broadside gain of a collinear array. The load is high-Z, with somewhat low reactance.

21 MHz: On this band, the antenna works as a $5/2$ -wave, center-fed long wire. This produces a multi-lobed, low angle radiator, with a high-Z

resistive load. When matched with the ATU, it makes a highly effective antenna for DX contacts.

24 MHz: The antenna again functions effectively as a $5/2$ -wave long wire, but due to the shift in the position of the current loops on the array, the load is resistive, approximating the load on 14 MHz. Again, the pattern is multi-lobed, with a low radiation angle.

28 MHz: On this band, the antenna acts as a 3-wave, center-fed long wire. The pattern is similar to 21 or 24 MHz, but with additional gain due to the colliner effect obtained by feeding two $3/2$ -wave antennas in phase. The load is high-Z, with low reactance.

In Part 3, I will discuss the construction of the G5RV... Keith, KE2DI

END OF PART 2.

Page 1

THE G5RV ANTENNA (PART 3)

----- CONSTRUCTION TIPS -----

THE FLAT-TOP:

The dimensions of the G5RV flat-top are specified in Part 1. The antenna does not need to be put up as a flat-top array, but can be installed as an inverted-V. The center of the antenna should be as high as possible, of course, and the matching section should descend at a right angle to the array. It is recommended that the smallest wire gauge used for the flat-top be #14, although wire as small as #18 could be used. If the antenna is raised as an inverted-V, the included angle at the apex should not be less than 120 degrees.

THE MATCHING SECTION:

It is recommended that the matching section be constructed of

open-wire feeder for minimum loss, as it always carries a standing wave on it. Due to the standing wave on it, the actual impedance is unimportant. A satisfactory construction technique for the open wire line matching section would be to make your own spreaders out of scrap lucite, or similar plastic of low dielectric loss. The plastic strips would be cut about 2 inches long, 3/8 inch to 1/2 inch wide, and be notched on the ends to fit #14 wire. The spreaders would be drilled about 1/2 inch in from each end for the binding (tie) wires, and the spacers would be spaced 12 inches center-to-center.

The next most-desirable matching section would be made from window-type open wire line, either 300-ohm, or 450-ohm. This is basically a ribbon line, like heavy duty TV-type twin lead, with #16 to #20 wire, and "windows" cut in the insulation every 4 to 6 inches. The advantage of the "window" line is that the conductors won't short together if the line twists in a high wind.

Lastly, and the least desirable, (although it will work), is "TV-type" twin lead. The main disadvantage of the TV-type twin lead is durability. The conductors on the twin lead are usually #22 to #28 gauge, and the plastic used for the insulation deteriorates faster in the sun and/or rain. The advantage of it is that it is readily available at electronics outlets, or even most department/home improvement stores. The quality is proportional to price, if a choice is available. Do not use the "shielded" twin lead. The shield will degrade the matching section, especially on 3.5 or 7 MHz.

MATCHING SECTION LENGTH:

The length of the matching section is an ELECTRICAL half-wave on 14 MHz.

The actual physical length is determined by the following formula:

$$L = (492 \times VF) / f \text{ (MHz)},$$
 where VF is the velocity factor of the matching section.

The velocity factor is determined by the type of line, and the dielectric properties of its insulation. For the three types of line discussed so far,

the VF is:

Open wire - .97
"Window" line - .90
"TV" twin lead - .82

Page 2

By substituting the VF in the formula, and calculating for a center frequency of 14.15 MHz, you come up with the following matching section lengths:

Open wire - 34 ft
"Window line - 30.6 ft
"TV" twin lead - 28 ft

This matching section is connected to the center of the array, and allowed to descend vertically at least 20 ft or more, if possible. It can then be bent and tied off to a suitable post or line, and connected to the coaxial line, which is run to the shack, and the ATU.

THE FEEDER:

In the original article describing the G5RV antenna, published in the "RSGB BULLETIN" for November 1966, it was suggested that, if a coaxial feed was used, a balun might be employed to provide the necessary balanced-to-unbalanced transformation at the base of the matching section. However, later experiments, and a better understanding of the theory of operation of the balun indicated that such a device was unsuitable due to the high reactance in the load presented at the base of the matching section. In a nutshell, DON'T USE A BALUN ON THE G5RV !!!!!

If a balun is connected to a 2:1, or higher SWR, its internal losses increase. The result is core heating and/or saturation. If saturated, the core can actually distort the RF wave, generating harmonics, and in extreme cases, with QRO, the core and balun can burn up (literally). An unbalanced-to-unbalanced ATU can accommodate the variable load, and cancel out the reactance present. It will also tend to reduce any harmonic energy

present,
which will, due to the multi-band nature of the G5RV, tend to be radiated. In
general, the automatic ATU's in modern rigs will load the G5RV on all but
the
10 MHz band.

END OF PART 3.

Page 1

THE G5RV ANTENNA
(PART 4)

ALTERNATIVE FEED SYSTEM:

Doug DeMaw, W1FB, in his "W1FB'S ANTENNA NOTEBOOK", states that the
G5RV can be fed directly with open wire to the ATU. If this is done, the
antenna will load on all bands with no problems. In this case, the ATU
needs
to have a balanced output to accommodate the balanced line. This would
lend
itself to the portable operator, who could use "TV"-type twin lead, and a
small tuner designed for balanced feed on all the HF bands. This would be
an
elegant solution for a campsite or cottage, reducing the bulk of the gear
to be carried. A convenient length of twin lead, allowing for the VF, would
be 72 ft. The whole antenna would coil up into a small bucket, or even a
backpack with #18 wire.

In closing, if you need a good , multi-band, and unobtrusive antler
for
your station, give the G5RV a try. Best of luck, and have fun!
73, Keith, KE2DI

SOURCES:

ARRL "ANTENNA COMPENDIUM", VOLUME 1
ARRL "W1FB'S ANTENNA NOTEBOOK"
ARRL "W1FB'S NOVICE ANTENNA NOTEBOOK"
TAB PUBLICATIONS "73 WIRE AND DIPOLE ANTENNA"
EDITORS AND ENGINEERS "RADIO HANDBOOK"

END OF PART 4

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And, I run a Double-sized G5RV for 160 & up here...Keith

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: wb2vuo@juno.com (William K Hibbert)
Subject: [682] The Inverted-L Antenna
Message-ID: <19960929.140719.4759.1.wb2vuo@juno.com>

Here's another posting from the BARK PBBS...Keith, WB2VUO

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Page 1

The Inverted "L" Antenna

So, you REALLY want to get on the 160 Meter band, but the neighbors won't let you run your 250' long dipole over their swimming pool? And, you say that the State DOT looks down on your attempt to tie the other end across the State Highway? Well, fear not, as there is a compact solution to your MF antler woes, and it is an Inverted "L". [It can also be cut for 80 or 40].

The Inverted "L" is a 1/4-wave Marconi, fed against ground or a counterpoise such as radials. The antenna displays a low feed impedance, which allow you to feed it directly with 50-ohm coax cable. The vertical section should be as high as possible, with the remainder of the antenna run horizontally to a support, such as a tree or a mast. The antenna is fabricated from wire, with the heavier the gauge the better. [The larger the wire diameter, the wider the bandwidth]. One method of installation would be to use a mast as the vertical "wire", with the horizontal section firmly bonded to the top of the mast.

The wire is cut to a resonant 1/4-wave length, based on the formula:

$$L(\text{Ft}) = 234/F(\text{MHz})$$

If your ground is REALLY good, like your house is on stilts over the ocean, a counterpoise won't be needed, but for our GREAT ground here in Western NY, figure on using at least one counterpoise, if not a few. The length of the counterpoise wires will be cut to a 1/4-wavelength by the formula:

$$L(\text{Ft}) = 246/F(\text{MHz})$$

Basically, the counterpoise should be high enough to not get in the way,

but could be as high as your installation allows. Mine is run around the base of the house, just below the siding, except around the back door. At that point, I ran the wire under the bottom of doorframe. The wire I used is #18 stranded insulated hook-up wire.

CHARTS

Well, any antenna discussion is not complete without a chart of some sort, so here are the dimensions for an Inverted "L", listed in tabular form:

Frequency	Radiator Length	Counterpoise Length
1.85 MHz	126.5'	133.0'
1.95 MHz	120.0'	126.2'
3.60 MHz	65.0'	68.3'
3.90 MHz	60.0'	63.1'
7.15 MHz	32.7'	34.4'

For bands above 40 Meters, an All-Wire Ground Plane can be constructed, but that's another wire antenna project for the future. Give the Inverted "L" a try, and enjoy your limited-space MF/HF operation.

72/73, Keith, WB2VUO, QRP-L #582
Trustee, KB2YTW/B 10 Mtr Beacon (28.2860 MHz)
"In the Depths of the Great Bergen Swamp...FN13ac"

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: wb2vuo@juno.com (William K Hibbert)
Subject: [683] The Square-Pole, A Limited-space Half-wave Loop
Message-ID: <19960929.140719.4759.3.wb2vuo@juno.com>

Here's another posting from the BARK PBBS...Keith, WB2VUO

=====

The "SQUARE"-Pole Antenna

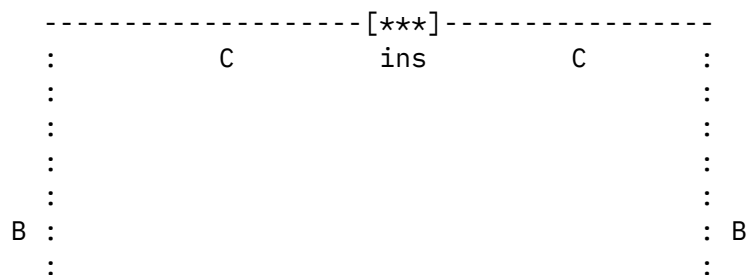
First off, I don't claim this to be an original idea here, in fact, what brought this back up was a roundtable conversation on 2 Meters

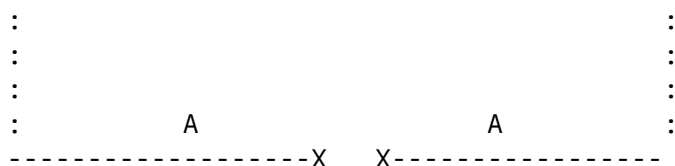
during my last trip to Allentown, PA, and the station using the "SQUARE"-pole had grabbed the idea from an old antenna book, combined with the now-discontinued Cushcraft 'Squalo' antenna. Cushcraft, back in the early to mid-60's sold the 'Squalo', which was/is an omni-directional horizontally-polarized antenna. It was best know for being used as a mobile antenna for 6 Meters and up, but Cushcraft actually sold scaled-up versions for Base-station operation all the way down to 40 Meters! I recall ads showing a "Christmas-Tree" of 'Squalo' antennas with the 40 Meter model on the botttom, and the other bands arrayed up the mast. It looked neat, but, electrically, the 40 Meter model should have been on TOP, to get the best electrical performance.

Anyway, back to the present...

The "SQUARE"-Pole is a 1/2-wave dipole that has been bent into a square. This is the principle of the 'Squalo', and the halo is the same idea, but the dipole is bent into a circle. There is some cancellation of energy on a line through the 'gap' opposite the feedpoint, but it is minor in the 'real' world performance. The unit under discussion down in Allentown was cut for 40 Meters, and the 'gap' was 4 feet long. The first version fabricated was 66 feet in circumference, and the spacer was 1/2-inch PVC pipe. When it was tuned up, it looked good, but when 400 watts was applied, the PVC heated up and CAUGHT FIRE!!! The second unit used ceramic egg insulators, and a length of P-Cord, which is a synthetic rope that is available in sport shops. This provided adequate insulation, and low dielectric losses. The resonance was at 7150 KHz, so the length was slightly longer that a straight dipole. I have worked out a chart, base on the resonance shown on the working model, and based on $470/F$ (MHz) for the total wire length, and with the 4 foot spacing scaled to the other bands.

The "SQUARE"-Pole is installed as a horizontal loop, with the corners run through egg insulators, and rope run out to the supports. As you can see from the chart above , even the longest side on 80 Meters & up can be ties off to the side of the average house, and the longest side on the 160 Meter version will fit across the "average" lot. The minimum height requirements are the same as you would use for a regular dipole, as high as you can get the antenna, and, if possible, at least 1/4-wave up. The installation should be as close to flat as possible.





Coax connects to points marked 'X'

Frequency	Total Length	A	B	C	Insulator
1.85 MHz	254.0'	33.8'	67.5'	25.8'	16'
1.95 MHz	241.0'	32.1'	64.3'	24.1'	16'
3.60 MHz	131.0'	17.4'	34.8'	13.4'	8'
3.85 MHz	122.0'	16.3'	32.5'	12.3'	8'
7.15 MHz	65.7'	8.7'	17.4'	6.7'	4'
10.12 MHz	46.4'	6.3'	12.6'	4.3'	4'
14.20 MHz	33.2'	4.4'	8.8'	2.9'	3'
18.14 MHz	26.0'	3.6'	7.3'	2.1'	3'
21.20 MHz	18.8'	2.6'	5.2'	1.6'	2'
28.40 MHz	16.6'	2.3'	4.7'	1.3'	2'
50.30 MHz	112.5"	15.6"	31.1"	9.6"	12"

[PLEASE NOTE THE 6 METER DIMENSIONS ARE INCHES, NOT FEET!]

PERFORMANCE

Back when I ran the 'Squalo' as a fixed-station antenna, I noticed basically no difference between the dipole I started out with and the 'Squalo'. There was a very slight 'null' in line with the gap, but it didn't really affect the overall operation. The 40 Meter version discussed on the roundtable I was in was getting good reports, but the user put it up due to limited room, and would have run the dipole if he had the length to do so.

I am going to install one here when the time permits, and will write up my findings and post them here. I will probably run the test(s) on 40 Meters, although 10 Meters is also a possibility. More to follow...

So, if you want to get on 160 or 80, or need an "inside" antenna for the other HF bands, the "SQUARE"-Pole might be your answer. In fact, you could fit a 40 Meter version on top of your camper/RV/Mobile home...

What a thought! I bet it would fit on top of a Semi, too!!!

73, Keith, WB2VU0, QRP-L #582

Trustee, KB2YTW/B 10 Mtr Beacon (28.2860 MHz)
"In the Depths of the Great bergen Swamp...FN13ac"

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: "Frank G3YCC" <g3ycc@enterprise.net>
Subject: [665] Using MOSFET PA's
Message-ID: <199609290853.JAA12895@mail.enterprise.net>

Check my web pages to see how easy it is to protect that MOSFET PA.
Cheers.

--

Frank G3YCC (G QRP 042)
QRP Web Page:
<http://homepages.enterprise.net/g3ycc/>

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: "Kelly Ellison" <kelman@dialnet.net>
Subject: [680] Wanted help with HW-8
Message-ID: <199609291638.LAA11964@shell.dialnet.net>

Hello all!
I just traded for a Hw-8, and have already made many enjoyable QSOs with it.
But, I noticed that it has a slight drift. I know that this rig was built around 20 years ago... but I would like to try and settle it down. This may have been discussed a zillion times so please Email me direct.
Any Modifications for the HW-8 would be appreciated also.

Thank you.

Kelly Ellison
WB0WQS - Aurora, MO
kelman@dialnet.net

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: "Frank G3YCC" <g3ycc@enterprise.net>
Subject: [681] Web page

Message-ID: <199609291749.SAA14955@mail.enterprise.net>

Have added the info on Kenwood/Trio rigs QRO to QRP add-on.

Bye

--

Frank G3YCC (G QRP 042)

QRP Web Page:

<http://homepages.enterprise.net/g3ycc/>

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: Jeffrey Herman <jherman@hawaii.edu>

Subject: [693] wind-generated electricity

Message-ID: <Pine.GS0.3.93.960929133356.14950A-100000@uhunix5>

I brought this topic up a couple years ago on here and have a fresh idea: I'm thinking now of using a "squirrel cage" roof ventilator (you see them atop industrial buildings). They seem quite sensitive - the slightest breeze will set the outer ball spinning - its shaft is attached to a ventilating blade below. I'll remove the lower blade and couple a 12vdc generator.

The greatest advantage of a vertical-axis turbine blade such as this is that wind direction plays no role in its orientation.

Now, what is the proper name for these ventilators? Has anyone tried doing this?

I'll start with a 12v bicycle generator and motorcycle battery (both are cheap!) and monitor the operation.

Comments are very welcome!

7.3W from Hawaii,

Jeff KH2PZ / KH6

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: Stew Whitehouse <76443.501@CompuServe.COM>

Subject: [673] WM-1

Message-ID: <960929135328_76443.501_GHN77-1@CompuServe.COM>

Hi folks,

I called Oak Hills Research this past week to order a WM-1 wattmeter.

Found that they are no longer available at OHR. Dick is coming out with the WM-2. This new model features a better, American made, meter, slighter slimmer case and provision to select internal battery or external power.

Dick hope to start shipping the WM-2 this coming week. I had to swallow a couple of times over the new price but ordered one anyway. :-)

Dick also said to look for his new WEB page <<http://www.ohr.com>> should be on any time now.

72/73

Stew KE4YH

Dunedin, Florida

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: Tom Bowman <tbowman@nbn.net>

Subject: [670] Re: first kit suggestions

Message-ID: <2.2.32.19960929131813.006b3c4c@nbn.net>

At 06:52 AM 9/29/96 -0400, you wrote:

>Hi Folks:

>I would like to ask the group the following:

>

>- suggestions for an inexpensive first time builder's transceiver kit

I just finished the NN1G 40-40 as detailed in the 1996 ARRL's Handbook and QRP Power. I built the xcvr by simply stuffing parts in the well-marked PC board without looking at the schematic.

The rig is on 40 meters - which I'd suggest building it for - and offers a single-signal receiver as part of the xcvr. There's no tune-up to speak of - just peak the capacitor in the front end.

Sensitivity appeared way down at first because there wasn't much action on 6.8 mHz during the day.

I wound the oscillator coil wrong - that's why I ended up on 6.8 mHz - fixed it, then took a turn or two off the front-end coil. Now 40 meters sounds the same on my 40-40 or TS-430.

The 40-40 is a great first rig, both from an operating and a building point

of view.

While there are a ton of mods in QRP Power, the only mods I've made is adding a zener to protect the final transistor and a zener and fuse on the DC input in case I reverse polarity.

I suggest getting everything from Dave, NN1G, to end the agony of looking for parts. If I'd build this one again, I'd buy the case and the RIT circuit from Dave.

Write him at Bensondj@aol.com for more info/price.

73,
Tom

Tom Bowman, WA3REY, Mount Gretna, PA 17064 tbowman@nbn.net

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996

From: Clay N4AOX <wyn@worldnet.att.net>

Subject: [686] Re: G5RV ideas for 160 thru 6 Meters

Message-ID: <324ED8BC.1714@worldnet.att.net>

William K Hibbert wrote:

> Just for reference, the ladder line is available at most amateur
> dealers, over-the-counter, or mail-order, and the polycarbonate
> (Lucite) plastic for the spreaders for home-built open wire is available
> at any major plastic supplier at scrap prices here in Rochester.

Keith,

My supplier of open wire line with the solid #18 conductor and the polystyrene peg insulators said the mfg. company had gone out of business or dropped the line. I believe it was Saxon or Saxton Wire. Do you know of another supplier of this material?

Also just for the record I believe that Lucite is a brand name for acrylic (used to be made near here by Rohm & Haas Chemicals). Lexan is a brand name for the polycarbonate. I think it is a DuPont brand. Polycarbonate is a latter day plastic compared to acrylic with much better mechanical properties, bullet proof windows, etc. Both acrylic and polycarbonate are subject to stress corrosion particularly under the influence of UV and acid rain. Lightly loaded they should work fine.

Thanks again for another great posting on antennas. Keep 'em

coming.

72/73,
Clay N4AOX

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: Luke Enriquez <ecsclfe@lux.latrobe.edu.au>
Subject: [664] Re: Ground for vertical
Message-ID: <9609290655.AA02713@lux.latrobe.edu.au>

Howdy,

> I am not sure exactly what your problem is, Luke. But if you have a
> metal roof beneath your vertical, you do not need to connect it to your
> vertical. The main purpose of radials or a metal roof is to act as a
> counterpoise to the antenna so the signal is not attenuated into the
> ground when you are transmitting.
>

Oh, sorry but I thought you had to make an electrical connection
between the ground plane and the braid of the coax (or the ground on the
antenna). Have I missed something?

Regards,
Luke

--

Luke Enriquez VK3DLE "I only cook with Non-violent
3rd Year Electronic Engineering fruit that pulps itself."
Latrobe University, Victoria, Australia.
ecsclfe@lux.latrobe.edu.au

--

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: "Frank G3YCC" <g3ycc@enterprise.net>
Subject: [677] Re: HF Loop Antennas
Message-ID: <199609291530.QAA05226@mail.enterprise.net>

There is loop info on my web page and a link to a specialist site for your
info.

--

Frank G3YCC (G QRP 042)
QRP Web Page:
<http://homepages.enterprise.net/g3ycc/>

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: wb2vuo@juno.com (William K Hibbert)
Subject: [689] RE: High Angle Radiators
Message-ID: <19960929.173649.4447.2.wb2vuo@juno.com>

In the same vein as Gary, AB7MY posted, there are a couple of "Cloudwarmers" in the ARRL publication, "W1FB's Antenna Notebook", and they use the same method, a dipole up 1/4-wave (or so) and a reflector 0.15 - 0.20 wave below it. This forms a high-angle, 2-element yagi. The wire reflector is 5% longer than the dipole or Inverted Vee.

There have been several low-elevation, high angle loops published, the first one I saw was listed as "The German Quad", and was in "73" magazine in the late 60's/early 70's. A US serviceman, stationed in Germany submitted the article, call unknown as I have given those magazines away aeons ago...

I don't know if a low wire reflector below the loop would enhance the high-angle performance or not, but I believe it would. Back when Oscar 6 and Oscar 7 were up, I had a 2-element Quad for 10 Meters, and pointed it straight up in the air. I heard the birds better on that than I did on the dipole, but better yet on a horizontal dipole with a preamp at the feedpoint. It's been long enough that I don't even have the notes on it now...

This could be an interesting thread, and definitely better, and more interesting than the \$\$\$\$\$\$\$\$\$\$Click here for Money\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$ thread of a month back :)

72/73, Keith, WB2VUO, QRP-L #582
Trustee, KB2YTW/B 10 Mtr Beacon (28.2860 MHz)
"In the Depths of the Great Bergen Swamp...FN13ac"

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: Jeffrey Herman <jherman@hawaii.edu>
Subject: [663] Re: No Connection
Message-ID: <Pine.GS0.3.93.960928200925.19743C-100000@uhunix5>

Hi Tom,
Glowplugs are for diesel engines! Try *glowbugs*:
subscribe glowbugs <your name here>
and you'll be hooked up.

7.3W,
Jeff KH2PZ / KH6

On Sat, 28 Sep 1996, Thomas J. Whalen wrote:

> I tried to subscribe to Glowplugs at listproc@theporch.com and it came
> back saying there is no such animal. Will the fellow that put out this
> information please check it out and make sure it is correct? Thanks Tom
> WB5QYT
>
>

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: Vic Rosenthal <rakefet@rakefet.com>
Subject: [661] Re: OHR 100 Reflections and Group Buy Info (Long)
Message-ID: <324E1045.1C5E@rakefet.com>

John, you beat me to it! I just returned from a camping trip with my brand new OHR 100 20-meter rig, and I want to add my thoughts:

First of all, Dick was exceedingly helpful to me when my new radio had a big loud birdie at about 14.005 - he agreed to check it out and (I guess I was sort of a beta tester of the 20m version) fix it for FREE and return it overnight so I would be able to take it on my trip (I did send him a few bucks for the overnight shipping, but that's all). Turns out that the original design had a birdie right at the band edge, and he changed the VFO and one of the crystal frequencies to move it completely out of the way; I think future kits will incorporate the change. IMHO, great customer service.

I won't add anything to your description of the kit and instruction quality. Both were top-notch. I too was worried about winding toroids (I haven't built much since vacuum-tube days), but it was a snap.

Second, the radio works great. I made a bunch of contacts all over North America, and really enjoyed the quiet receiver and clean audio. When you are out in the woods without all of the usual RF pollution, you can really appreciate this kind of receiver. The transmitter easily put out more than 5 watts with a 12-volt gel cell (I adjusted it for exactly 4.999999 watts, of course). Signal quality reports were all good.

I found two minor annoyances: I didn't like the feel of the tuning pot that much; I wish it was smoother and had less 'stiction'. I don't know if it's possible to find a better one, or if this one will loosen up with use, or if it can be lubricated. I would not want to replace it with a 10-turn pot,

though. Also, strong signals had a thump caused by the agc attack characteristics. It wasn't really a big problem, but I thought I should mention it. Overall, I am _very_ happy with the radio.

One unrelated point: Am I right that 14.060 is supposed to be a QRP calling frequency? All I ever heard around there was RTTY. I made most of my contacts around 14.030 - 040.

Vic K2VC0/6 (a new member - # 725 - of QRP-L and loving it!)

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: Jeffrey Herman <jherman@hawaii.edu>
Subject: [662] Re: r.r.a.qrp on netnews?
Message-ID: <Pine.GS0.3.93.960928200054.19743B-100000@uhunix5>

On Sat, 28 Sep 1996, Cecil A Moore wrote:
> I'm a relatively new subscriber wondering why there isn't
> a netnews group, like rec.radio.amateur.qrp?
> 73, Cecil, W6RCA

Oh boy, Cec; asking that question on here is like starting the code/nocode war on the newsgroups! We've wrestled with the mail-list vs newsgroup idea since the creation of this list. The overwhelming response is always not to go the ng route; folks feel the list will lose its personal touch, and we'll be more vulnerable to off-topic posts.

Something about the process of having to subscribe to a list acts as a filter to keep out those who really aren't devoted to the list's topics.

7.3W from Hawaii,
Jeff KH2PZ / KH6

From owner-qrp-l@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: "Paul R. Valko" <prvalko@Oakland.edu>
Subject: [672] Re: r.r.a.qrp on netnews?
Message-ID: <Pine.OSF.3.91.960929092158.14092A-100000@vela.acs.oakland.edu>

On Sat, 28 Sep 1996, Cecil A Moore wrote:
> I'm a relatively new subscriber wondering why there isn't

> a netnews group, like rec.radio.amateur.qrp?

Three words: MAKE MONEY FAST!!!

Welcome to the group, Cec. How's about telling us a little about you and your QRP affiliations?

73 =paul= wb8zjl <---- Watch this space!

From owner-qrp-1@Lehigh.EDU Sun Sep 29 23:13:20 1996
From: adams@chuck.dallas.sgi.com (chuck adams)
Subject: [694] Re: Rules
Message-ID: <199609300020.AAA27770@chuck.dallas.sgi.com>

Bob,

Please delete section on two points for CA stations. I thought the west coast was on the light side and have decided I made a bad decision. It gives them an unfair advantage, so the change is the rules is to delete all lines giving CA 2 points each.

Thanks for doing this.

dit dit

: Chuck Adams (K5FO CP-60) 49/49/50 adams@sgi.com
: EMPS QS0s=0 STATES(w/c)=0/0 DX=0